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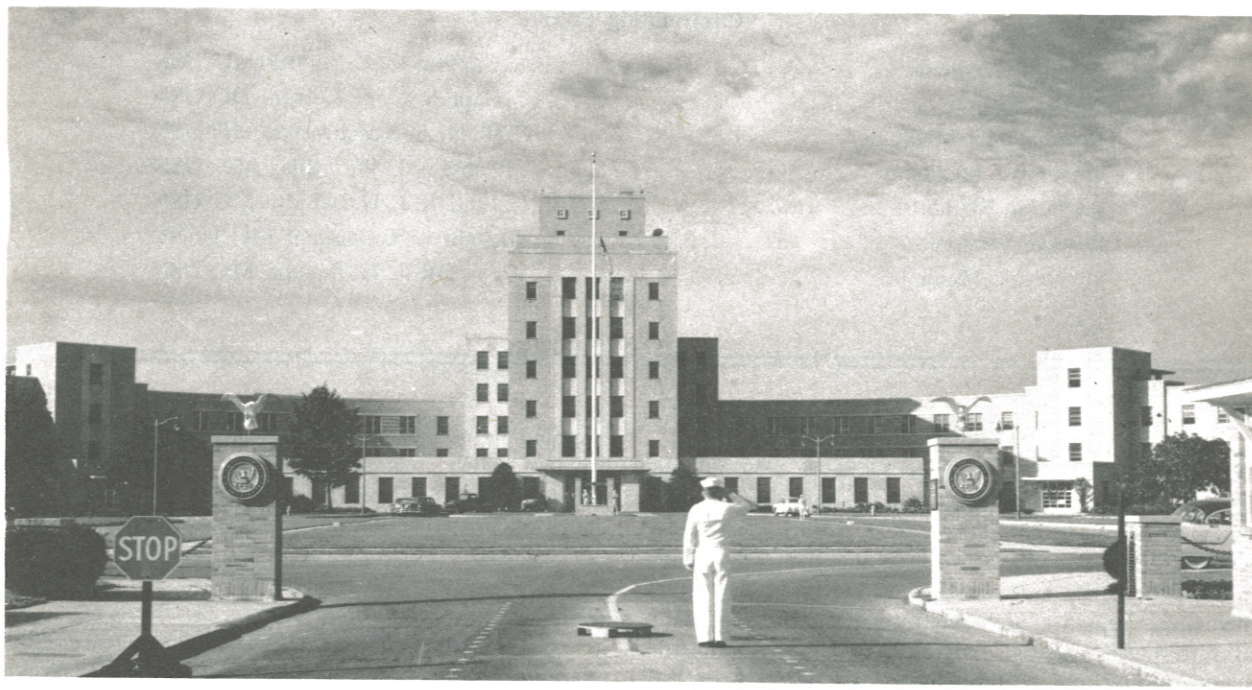
Vol. 45 Friday, 12 February 1965 No. 3



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United States Navy

MEDICAL NEWS LETTER

Vol. 45 Friday, 12 February 1965 No. 3

Policy

The U.S. Navy Medical News Letter is basically an official Medical Department publication inviting the attention of officers of the Medical Department of the Regular Navy and Naval Reserve to timely up-to-date items of official and professional interest relative to medicine, dentistry, and allied sciences. The amount of information used is only that necessary to inform adequately officers of the Medical Department of the existence and source of such information. The items used are neither intended to be, nor are they, susceptible to use by any officer as a substitute for any item or article in its original form. All readers of the News Letter are urged to obtain the original of those items of particular interest to the individual.

Change of Address

Please forward changes of address for the News Letter to: Commanding Officer, U.S. Naval Medical School, National Naval Medical Center, Bethesda, Maryland 20014, giving full name, rank, corps, and old and new addresses.

FRONT COVER: The U.S. Naval Hospital, St. Albans, New York, was commissioned on 15 February 1943. The original plans in 1942 were for building a permanent hospital to be situated on 117 acres of ground, formerly the St. Albans Golf Club and Community Center. Ground was first broken in May of that year for a permanent building of 1,000 beds but, with the progress of the war, the Navy soon saw that far greater accommodations would be needed. Accordingly, work on the permanent hospital was suspended and plans were hastily revised for temporary structures with 1,500 beds. On the day of commission, the hospital census was already up to 1,100 patients and soon after, war casualties began arriving from all over the theatres. On 1 January 1944 the census showed 3,942 patients and on the same date in 1945 there were 5,200.

In 1948 construction began on the permanent building which was commissioned on 15 August 1951.

As well as providing all types of specialty care, this hospital is designated as a center for cancer, tuberculosis, and neurosurgery.

There are both intern and residency training programs available.—Editor.

The issuance of this publication approved by the Secretary of the Navy on 4 May 1964.

MALPRACTICE AND THE SERVICE DOCTOR*

*LCOL Raymond Coward JAGC USA*** *United States Armed Forces Medical Journal IX (2): 224-240, February 1958.*

Malpractice and professional liability are matters of direct concern to every member of the medical profession, whether he is engaged in private practice or is a doctor serving in the Armed Forces. At common law there was no duty on the part of the doctor to render medical care to an ill person, and the law in this country imposes no liability on the doctor for refusing to take a case, but once medical care is undertaken by the doctor, he becomes responsible for his acts. This is true even if the patient is a charity case.

Recognizing that he should practice his profession with the welfare of the patient uppermost in mind, the doctor asks how he can do this and still protect himself against malpractice claims. Are these two concepts incompatible? How is the service doctor affected by malpractice claims as compared to the private practitioner? Should a medical officer carry malpractice insurance? Are there definite steps that can be taken or procedures which may be followed by either a private or service doctor that will furnish substantial protection to him and either reduce the likelihood of malpractice claims or avoid them altogether?

The realization that these and related questions are constantly in the minds of doctors has prompted the writing of this article in an effort to help the individual doctor, and particularly the medical officer, to arrive at sound conclusions with respect to this complicated medico-legal field. Some of the principles discussed are applicable not only to the medical officer but also, under certain circumstances, to the service dentist, nurse, or other member of the medical team, after making allowance for the different standards of education, training, experience, and knowledge applicable to the different professions.

Definitions

What is malpractice? It has been defined as: "Any professional misconduct, unreasonable lack of skill or fidelity in professional or fiduciary duties, evil practice, or illegal or immoral conduct."[1] More specifically, as applied to physicians and surgeons, it means bad, wrong, or injudicious treatment of a patient, professionally and in respect to the particular disease or injury, resulting in injury, unnecessary suffering, or death to the patient, and proceeding from ignorance, carelessness, want of proper professional skill, disregard of established rules or principles, neglect, or a malicious or criminal intent.[2]

The term *malpractice* appears to be used more and more by the courts as though synonymous with negligence on the part of the physician, surgeon, dentist, or nurse. Negligence is: "The omission to do something which a reasonable man, guided by those ordinary considerations which ordinarily regulate human affairs, would do, or the doing of something which a reasonable and prudent man woud not do."[3]

In general a legal action based on negligence (malpractice) is founded on a tort as distinguished from an action on a contract as a result of an agreement between the parties concerned. However, the action may be based on a contract in an instance where the doctor agreed to cure or to make a specified improvement in the patient's condition and failed to do so as a result of his medical treatment.

A tort is defined as: "A wrong independent of contract. A violation of a duty imposed by general law or otherwise upon all persons occupying the relation to each other which is involved in a given transaction."[4] Three elements of every tort action are: existence of a legal duty from defendant to plaintiff, breach of duty, and damage as approximate result.[5]

RES IPSA LOQUITUR

With respect to negligence cases there is a doctrine in the law known as "res ipsa loquitur" or "the thing speaks for itself." In malpractice proceedings, plaintiffs and their attorneys often encounter difficulty in obtaining the services of experts in the medical and nursing professions to testify that a colleague was negligent. The doctrine of *res ipsa loquitur* is a great assistance to the plaintiff under such circumstances. Except for this doctrine how could plaintiffs otherwise prove that paralysis,

* From Legal Office, Office of The Surgeon General, Department of the Army, Washington, D.C.

** Colonel Coward is now retired from the Army and lives at Searcy, Arkansas.

burns, foreign substances in the abdomen, and other such conditions were the result of negligent acts?

Three conditions are necessary for the rule of *res ipsa loquitur* to apply: (1) The accident is of a kind that does not occur in the absence of someone's negligence; (2) the injury is caused by an instrumentality within the exclusive control of the defendant; and (3) the accident is of a kind that the plaintiff could not have contributed to by his conduct. How this doctrine is applied depends on the law of the particular state. In some states proof of the three required conditions is considered as circumstantial evidence, and negligence may be inferred. In other states proof of these three conditions creates a presumption of negligence and places the burden on the defendant to overcome the presumption. A *presumption* is a deduction which the law requires the trier of facts to make, an *inference* being a deduction which the trier may or may not make according to his own conclusions; a *presumption* is mandatory, an *inference* permissible.[6]

A leading case in the United States on the doctrine of *res ipsa loquitur* as applied to malpractice suits is that of Ybarra v. Spangard.[7] The essential facts in this case are:

Plaintiff entered a private hospital for an appendectomy to be performed by the defendant. On the day of the operation he was wheeled into the operating room by a nurse who was an employee of Dr. Swift, who owned the hospital. The anesthetist, also an employee of Dr. Swift, adjusted plaintiff for operation, pulling his body to the head of the operating table and laying him back against two hard objects at the top of his shoulders, about an inch below his neck. The anesthetic was administered and plaintiff lost consciousness. He awoke next morning in his room attended by two nurses, also employees of Dr. Swift.

Plaintiff testified that prior to the operation he never had had any pain in, or injury to, his right arm and shoulder, but that when he awakened he felt a sharp pain between the neck and the point of the right shoulder. He received diathermy treatments, but the condition spread to the lower part of his arm. He could not lift or rotate his arm, and developed paralysis and atrophy of the muscles round his shoulder.

Plaintiff instituted proceedings against the physician who diagnosed the case, the owner of the hospital, the surgeon, the anesthetist, and the three nurses. After his testimony, attorneys for the defendants asked that the suit be dismissed on the ground that the plaintiff did not prove any defendant to be negligent; and, indeed, by all legal standards, he did not. But the plaintiff contended that his testimony showed the existence of the three conditions necessary to invoke the doctrine of *res ipsa loquitur,* that the inference of negligence was established, and that the plaintiff should prevail.

The defendants claimed the doctrine did not apply in this case; that the condition that the instrumentality was in the exclusive control of defendant did not exist, and that the doctrine cannot apply where several defendants are involved and there is a division of responsibility. The court decided for the plaintiff and said:

"But we do not believe that either the number or relationship of the defendants alone determines whether the doctrine of *res ipsa loquitur* applies. Every defendant in whose custody the plaintiff was placed for any period was bound to exercise ordinary care to see that no unnecessary harm came to him and each would be liable for failure in this regard. Any defendant who negligently injured him, and any defendant charged with his care who so neglected him as to allow injury to occur, would be liable. The defendant employers would be liable for the neglect of their employees; and the doctor in charge of the operation would be liable for the negligence of those who became his temporary servants for the purpose of assisting in the operation.

We do not at this time undertake to state the extent to which the reasoning of this case may be applied to other situations in which the doctrine of *res ipsa loquitur* is invoked. We merely hold that where a plaintiff receives unusual injuries while unconscious and in the course of medical treatment, all those defendants who had any control over his body or the instrumentalities which might have caused the injuries may properly be called upon to meet the inference of negligence by giving an explanation of their conduct."

This case shows the importance of keeping careful, complete, and accurate case histories and records on each patient. This is important not only for the civilian doctor or nurse but for the service doctor or nurse as well. The doctrine of *res ipsa loquitur* is at issue in a large proportion of malpractice cases in litigation and is frequently held applicable to individual cases by the courts.

RESPONDEAT SUPERIOR

The rule of law known as "respondeat superior" or "let the master answer" has applicability in malpractice cases in certain instances. This rule provides that an employer or principal is liable for the torts committed by an employee or agent in the course of employment or action as an agent. The rule does not absolve the employee from liability; rather, it permits the injured party to sue both the employee and the employer. Frequently the employer is in a better financial position and consequently the suit is brought against the employer or jointly against the employee and employer so that the injured party has a better chance of recovering damages for his injuries.

FEDERAL TORT CLAIMS ACT

It is a general rule of law that a government may not be sued without its consent. This is based on the theory of sovereign immunity and can be traced back to the

common law in early English history. It was said, "The King can do no wrong," and consequently no one was permitted to sue the crown.

However, the Federal Tort Claims Act[8] (FTCA) was passed by Congress and became effective in the United States in 1946. Prior to this, the United States could not be sued for negligent acts of its employees or agents. This Act created consent of liability on the part of the Federal Government where claims are established for damage to or loss of property, or for personal injury or death, caused by negligent or wrongful act or omission of any employee of the Government while acting within the scope of employment or office, in circumstances in which the United States, if a private person, would be liable to a claimant in accordance with the law of the place in which the act or omission occurred.

The FTCA provides specifically that the acceptance by a claimant of an award or settlement shall constitute a complete release by the claimant of any claim against the United States and against the employee of the Government whose act or omission gave rise to the claim. The FTCA excludes any claim for negligence arising out of the exercise of a discretionary function relating to policy or interpretation, miscarriage of mails, assessment or collection of custom duty, quarantine, assault and battery, false imprisonment, false arrest, malicious prosecution, abuse of process, libel, slander, misrepresentation, deceit, interference with contract rights, the operations of the Treasury, or combat activities of military forces during time of war. It also excludes any claim for negligence arising in a foreign country, or in the operation of the Tennessee Valley Authority or the Panama Canal.

In effect, the FTCA establishes consent on the part of the Federal Government to liability under the rule of *respondeat superior* for negligence of employees committed in the course of employment. There is no consent to being sued for claims arising under the exemptions stated. A person having a claim for any cause other than negligence, as limited, would be in the same position as were claimants sustaining negligent injuries prior to the enactment of the FTCA, and as are claimants who have sustained injuries committed by state governmental employees. Such claimants cannot institute legal proceedings in courts; they are required to seek the aid of Congress in case of a claim against the Federal Government, or the aid of the appropriate state legislature in the case of a claim against a state government, for the enactment of a special law to compensate them for damages sustained.

The United States District Courts have exclusive jurisdiction over suits brought under the FTCA; however, claims under $1,000 may be compromised and settled by the heads of federal agencies and departments. The Army has published regulations setting forth the procedure for settling these claims.[9] Claims over $1,000 may be compromised and settled, but must be approved by a Federal Court. Claims not settled may be determined by proceedings in court, which must be commenced within a specified period of time, depending on the statute of limitations in effect where the cause of action arose, and generally within one year from the date of the commission or omission constituting negligence.

Also, certain claimants may file an administrative claim, but not a suit, under the provisions of the Military Claims Act of 1943.[10] This statute has been implemented by regulations of the Army.[11] Thus a claimant may have a remedy under one of the two above named Acts. He may also bring an action against the individual doctor, but he is more likely to bring the action against both the doctor and the United States.

If an Army or other Government agency doctor is sued individually, he may request that the case be removed to a Federal District Court if the action is brought in a state court.[12] In any case where an Army doctor is sued individually or sued jointly with the United States, a report of litigation, in accordance with published regulations, should be submitted to the Department of the Army.[13] Arrangements may then be made by the Office of The Judge Advocate General with the Department of Justice for the local United States Attorney to make an appearance in the case and defend the doctor and the United States.

If a judgment should be obtained against an Army doctor individually, the Department of the Army would, in all probability, sponsor a private bill in Congress to give him relief. *In the past it has not been necessary to seek such legislation, as no case has been reported where an Army doctor has been held by a decision of a court to be individually liable,* although bills are now pending before Congress to give relief to two Army employees held individually liable in traffic cases. If a judgment is obtained against the United States, subsequent recovery from the individual doctor is barred by the statute.[14]

A major difficulty in applying the rule of *respondeat superior* is in determining whether the employee was acting within the scope of his employment; however, "scope of employment" has been defined to mean "acting in the line of duty" when applied to a member of the military forces.[15] The Federal Government therefore is liable for the acts of its employees in the same manner as a private employer is liable.

A case as to whether the employee was acting within the scope of his employment was decided in Watt v. U. S.,[16] wherein it was held that the Government was not responsible for the negligent operation of a government truck by a sergeant of the National Guard, because the man's job description did not provide for his driving military vehicles and consequently he was acting outside the scope of his employment. In another case, Dishman v. U. S.,[17] an employee of the Veterans Administration, had carbolic acid poured into his ear for an ear pimple by a physician of the Veterans Admini-

stration. The Court held the Government was liable, as the regulation of the Veterans Administration authorized treatment of minor ailments of employees and the physician was therefore acting within the scope of his employment.

The United States would not be liable, even if the physician was acting within the scope of his employment, if the cause of action falls within one of the specific exemptions to the Federal Tort Claims Act. One of the exceptions, for example, is an action based on assault and battery. This tort is the basis for many professional liability suits such as those involving unauthorized operations and treatments. In the case of Moos v. U. S.,[18] which arose in Minnesota, the plaintiff's right leg and hip were operated on in a Veteran's Hospital, when it was his left leg and hip that needed the operation. His suit was dismissed as being an action for assault and battery and not actionable under the FTCA. It should be kept in mind, however, that the plaintiff could still sue the individual doctor in a case such as this.

Another type of case excluded under the FTCA is any claim for negligence arising out of the exercise of a discretionary function relating to policy or interpretation. Problems in this area have arisen in the past with respect to furnishing medical care to dependents of military personnel. The question of what is or is not a discretionary function has caused the courts considerable difficulty. It was held in Denny v. U. S.[19] that since admitting dependents of military personnel to government hospitals is discretionary, no action could be brought for negligence under FTCA. However, it was held in Grigalauskas v. U. S.,[20] a Massachusetts case, that once the discretion is exercised and the patient admitted, the discretionary function ceases and the Government is liable for any subsequent negligent acts. It also was held in Costley v. U. S.[21] that the use of an anesthetic containing a harmful substance was not a discretionary act and did not fall within the discretionary exception under the FTCA. After the Texas City disaster, it was held in Dalehite v. U. S.[22] that action against the United States under the FTCA could not be maintained, because of the principle of discretionary function. Recent decisions of the Supreme Court in the case of Indian Towing Co. v. U. S.[23] and in the Eastern Airlines case[24] indicate that the discretionary act exclusion is now limited to those decisions made on a policy-making or planning level, and decisions made on an operational level could not be used as a basis for denying a cause of action under FTCA, even though some discretion is involved.

The question of whether a serviceman has a right to sue under the FTCA was settled in Feres v. U.S.[25] The opinion covered three cases. One, Jefferson v. U.S., [26] was a suit by a veteran who had a towel left in his abdomen during an operation in an Army hospital while he was still on active duty. Another case was Griggs v. U.S.,[27] which concerned an officer in the Army who died after treatment in an Army hospital, while the Feres case involved an officer of the Army who died in a fire in the barracks. The Court held that none of these claims could be maintained under the FTCA, because the injured parties were servicemen on duty at the time of injury or death. The opinion points out that the Government has financially provided for members of the Armed Forces in different ways and that traditionally members of the armed services could not sue the Government for injuries received on duty. It would bring chaos to the order and discipline of the Armed Forces to allow every serviceman to sue the Government for every real or fancied wrong he might suffer.

The limitations discussed with respect to discretionary functions would apply also to civilian employees of the Government. Prior to 1949 it appears that a civilian employee could elect to proceed under the FTCA or the Federal Employees' Compensation Act.[28] In 1949 Congress amended the latter Act so as to make it the exclusive means of compensation for a civilian employee killed or injured "while in the performance of his duty."[29] It will be noted, however, that in the case of Dishman v. U.S.[30] the Court held that an employee of the Veterans Administration could bring an action under FTCA for negligence of a physician of the Veterans Administration in treating a pimple in the ear, as the injury was not incurred in the performance of duty and therefore was not governed by the Federal Employees' Compensation Act. Very few cases are found which involve claims under the FTCA by civilian employees against government physicians. This indicates either that such claims are being handled under the Federal Employees' Compensation Act or that comparatively few civilian employees are being treated by government physicians.

The question may be raised as to whether the enactment by Congress of the Dependents' Medical Care Act[31] is likely to result in more malpractice claims against service doctors. Section 103(a) of the Act provides:

Whenever requested, medical care shall be given dependents of members of a uniformed service, and dependents of persons who died while a member of a uniformed service, in medical facilities of the uniformed services subject to the availability of space, facilities, and the capabilities of the medical staff. Any determination made by the medical officer or contract surgeon in charge, or his designee, as to availability of space, facilities, and the capabilities of the medical staff, shall be conclusive. The medical care of such dependents provided for in medical facilities of the uniformed services shall in no way interfere with the primary mission of those facilities.

This statute has codified a substantial part of what was in the law and pertinent regulations prior to its enactment. In addition to setting out the types of

medical care that may be furnished, it specifically prohibits or limits others which formerly were prohibited or limited by policy and regulation, such as ambulance service, domiciliary care, and treatment of nervous and mental disorders. The new law specifically provides that "any determination made by the medical officer . . . as to the availability of space, facilities, and the capabilities of the medical staff shall be conclusive." Consequently, there does not appear to be any mandatory requirement to admit and treat dependents of military personnel in military medical facilities, and no increase in malpractice claims or suits against service doctors of the United States should be expected as a result of the enactment of the Dependents' Medical Care Act.

(To be continued.)

JAMES P. SEMMENS CAPT MC USN
U.S. NAVAL HOSPITAL, OAKLAND, CALIF.

James P. Semmens CAPT MC USN, is Chief of Obstetrics and Gynecology and Chief of Dependents Outpatient Service at the U. S. Naval Hospital, Oakland, California, and is Visiting Clinical Instructor in Obstetrics and Gynecology at the Medical College of South Carolina in Charleston. He is a Diplomate of the American Board of Obstetrics and Gynecology and a Fellow of the American College of Surgeons and the American College of Obstetricians and Gynecologists. He is also Chairman of the Committee of Maternal Health of the Armed Forces Chapter of the A. C. O. G.

BEWARE OF UROLOGIC COMPLICATIONS IN PREGNANCY

By CAPT James P. Semmens MC USN. Consultant 4(10): 30–32, Nov-Dec 1964.

Pyelonephritis is the commonest of all complications of pregnancy—save that of excessive weight gain. What its role is in relation to asymptomatic bacteriuria and as a cause of premature birth or toxemia has even the experts debating. At the Second International Symposium on Pyelonephritis held in Boston this last June, opinions were divided. Seven studies aimed at answering these questions were reported with three substantiating a casual relationship, three failing to confirm it, and one reporting evidence strongly suggesting such a relationship. All agreed, however, that bacteriuria strongly predisposes to pyelonephritis in pregnancy, and it is even thought to be a latent stage of chronic pyelonephritis. They also felt that bacteriuria is related to toxemia; one author reported that women with preeclamptic toxemia had much higher rates of bacteriuria than did normotensive women. Dr. Priscilla Kincaid-Smith of Melbourne, Australia, reported prematurity rates were two times greater (12% as opposed to 5%); stillbirth and abortion rates, three times greater (10% as opposed to 3%); and toxemia, two times greater in bacteriuric women.

One thing we are sure of: our attitudes toward urinary tract infection are in for a drastic change. For example, we are no longer justified in thinking of pyelonephritis as a "minor" complication of pregnancy, although a good many of us now act as though it were. We must treat pyelonephritis more vigorously, not only because it may threaten the fetus with premature birth, but also because it may shorten the life of the patient

as the first stage in a chronic renal process. We must also be sure that the infection is not really a manifestation of major renal disease.

Pregnant women are particularly susceptible to urinary tract infection because the flow of urine is slowed by the dilated and distorted ureters and bladder, made atonic by the increased secretion of progesterone and by pressure from the enlarging uterus. Typically, in the last trimester or shortly after delivery, the patient develops intermittent high fever and sudden, severe flank pain, usually on the right side.

Examination reveals tenderness in the costovertebral angle and albumin, bacteria, and WBC's (pus) in the urine. The diagnosis is further confirmed by culture and sensitivity studies of the urine. We prefer to obtain urine for culture by the mid-stream technique, if the patient can be relied upon to obtain it properly. If she cannot, we catheterize using sterile surgical technique. The important thing is to get the bacteriologic data before beginning treatment, for once antibiotics or chemotherapeutic agents are given, diagnosis of resistant organisms or underlying major renal disease is difficult.

CHEMOTHERAPY

Sulfonamides may be adequate in the middle trimester, and even in the early part of the third trimester. However, I prefer Furadantin (nitrofurantoin) in the third trimester, when premature labor is a threat, because sulfonamide has been shown to cause a hemolytic response in premature infants. Gantrisin is my drug of choice when sulfonamides can be safely employed, using 2 Gm initially and 1 Gm every 6 hours for at least 7 to 10 days. (I repeat the urine culture at that time.) Otherwise, I prefer to prescribe Furadantin in 100 mg doses four times a day for 3 days followed by 50 mg four times a day for 7 to 10 days. I check the response by culture, continuing on 50 mg three times a day as long as the microscopic urine or culture is positive for bacteria. Like Gantrisin, Furadantin is highly soluble and causes few toxic reactions; moreover, it is effective against some sulfonamide-resistant organisms. Although the illness, in most cases, appears to last less than 14 days, it is important to continue some form of chemotherapy for the duration of the pregnancy. Otherwise, infection tends to recur.

WHEN SYMPTOMS PERSIST

Do not hesitate to carry out a simple cystoscopic examination or ureteral catheterization during pregnancy, if indicated. However, you may delay ureteral catheterization until ureteral function has been evaluated; by injecting indigo carmine intravenously and noting its rate of excretion you can determine whether an obstruction is present. When no obstruction is demonstrable, I leave the ureteral catheters in place for 24 hours to establish drainage; this in combination with chemotherapy usually produces immediate relief of the patient's acute symptoms.

Whenever a patient fails to respond to the initial drug therapy, dictated by sensitivity response in vitro, you should search diligently for a possible underlying renal deformity or disease. A scout film K. U. B. and a ten-minute urogram with proper shielding of the fetal gonads is justified and will suffice in most cases; these tests detect chronic pyelonephritis, renal tuberculosis, renal tumors, and congenital anomalies of the vascular or renal pedicles. Certainly when dealing with diseases of this sort, the slight danger of irradiating the fetus is far outweighed by the benefit to the future well-being of both the mother and the infant.

MAJOR UROLOGIC DISEASE

By far the most common major uropathies are, in my experience, severe pyelonephritis (acute and chronic), and ureteral calculi. The symptoms are identical: chills, high fever, flank pain, dysuria, and occasionally hematuria.

In most patients, the flank pain of pyelitis occurs on the right; when it occurs on the left, ureteral calculi or congenital anomalies of the urinary tract must be considered or ruled out. Acute tenderness in the costovertebral angle before the twentieth week of pregnancy also suggests infection due to obstruction by calculi; the same symptom after the twenty-eighth week is more typical of infection due to ureteral dilatation and obstruction caused by displacement of the ureter or trigone of the bladder by the gravid uterus.

Although an infection confined to the renal pelvis usually responds rapidly to drug treatment, infection involving the parenchyma does not. Extensive infection of this type may even antedate the pregnancy by months or years and may require vigorous, continuous drug therapy for months before and after delivery.

I have observed that patients with chronic pyelonephritis are apt to have small babies. Hence, in any patient who has had babies weighing less than 5½ pounds and repeated urinary tract infection, I suspect existing chronic renal disease and, if present, initiate early therapy. I treated one woman, who had delivered prematurely in eight previous pregnancies, with nitrofurantoin from the fourth month until term, and she delivered a baby weighing 2½ pounds more than any of her previous ones.

Ureteral calculi are supposed to be rare. Yet while I was stationed at the naval hospitals in Charleston, South Carolina, and Pensacola, Florida—in an area long called the "stone belt"—I saw 12 patients (one in every 286 deliveries) with ureteral or renal calculi. This is also supposed to be a disease of middle age, yet the average age of my patients with calculi was 27 and one was only 21.

One third of these patients passed their calculi spontaneously, one third were treated with antibiotics before delivery and had surgery afterward, and one third required surgery before delivery. Naturally, we prefer to postpone surgery, but intractable pain and toxic manifestations may demand surgery during pregnancy. Ten of the 12 patients with ureteral calculi delivered living infants.

Two patients studied had renal tuberculosis. The diagnosis was made from a K. U. B. and urogram and urine culture and guinea pig inoculation of the catheterized ureteral urine specimens.

I have tried to make two major points: always be alert for urologic infection, symptomatic or otherwise, during pregnancy, and when suspicion is confirmed, beware of underdiagnosis and undertreatment.

FROM THE NOTE BOOK

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY

Applications and letters of request from previous applicants requesting to be scheduled for the forthcoming Part I examination of this Board to be given July 2, 1965 will be accepted in the Board office up until the closing date of February 28, 1965. Applications and letters of request postmarked after that date will be returned to the sender.

Application forms and Bulletins may be obtained by writing to the office of the Secretary—Clyde L. Randall, MD, American Board of Obstetrics and Gynecology, 100 Meadow Road, Buffalo, New York 14216.

Servicemen applying for the Part I examination are requested to submit the name of their Commanding Officer.

Diplomates of this Board are requested to keep the Board office informed of address changes.—Training Branch, BuMed.

IN THE SPOTLITE

CAPT L. L. Isert, Administration Officer of this Hospital, recently received a letter of appreciation from Admiral E. C. Kenney, Surgeon General of the Navy. Presentation of the letter was made by CAPT L. L. Haynes, commanding officer, which reads:

From: Chief, Bureau of Medicine and Surgery
To: Captain L. L. Isert, MSC, USN
122190/2300
Via: Commanding Officer, U. S. Naval Hospital, Chelsea, Massachusetts
Subj: Letter of Appreciation

1. The Report of the Study Group for Management Review of the Bureau of Medicine and Surgery, together with reclamas and subsequent reviews have all been considered and acted upon by the Chief of the Bureau, and appropriate action directed.

2. At this time it is considered most fitting and proper to express my sincere appreciation for the outstanding work the study group has accomplished.

3. Not only will the results involve significant savings financially to the Government, but numerous management improvements are being adopted, and in many instances unnecessary overlapping and duplication in functions will be eliminated.

4. The thorough, detailed studies made by the members of the Study Group will serve as source material and provide guidance for future programs and surveys, as well as the immediate benefits to be gained.

5. You are complimented and commended for a task which has been carried out with distinction.

6. A copy of this letter will be made a part of your official record.

S/E. C. KENNEY

—NH2 Gauzette, U.S. Naval Hospital, Chelsea, Mass., 1(2): 4, December 1964.

AFIP HOSTS ANNUAL PG COURSE

Washington, D.C., Jan. 5, 1965 (AFIP)—The Armed Forces Institute of Pathology will host the 12th annual postgraduate course in "Pathology of the Oral Regions," to be held at the Institute Mar. 1-5, 1965.

The course, which will be directed by CAPT Henry H. Scofield DC USN, Chief of the Institute's Dental and Oral Pathology Division, is designed to provide dentists and physicians current information regarding the various aspects of oral disease.

It will be presented by specialists in oral and general pathology, oral surgery, periodontics and dental and cancer research. The course will feature discussions on developmental disturbances of the head, neck and oral region, inflammatory diseases of the

oral mucosa and jaws, the oral manifestations of certain systemic diseases and neoplasms of the oral cavity, jaws and salivary glands. The course will be supplemented by illustrations of the clinical, roentgenographic and microscopic characteristics of those factors. Lectures will be correlated with case presentations and microscopic seminars.

Further information regarding the course may be obtained by writing: The Director, Armed Forces Institute of Pathology, Washington, D. C. 20305. —AFIP Technical Liaison Office.

NAVAL MEDICAL RESEARCH REPORTS

U.S. Naval Medical Research Institute, NNMC, Bethesda, Md.

1. An Experiment in Maintaining Homeostasis in a Long Distance Underwater Swimmer: MR 005. 13–4001.06 Report No. 2, July 1964.

U.S. Naval Dental School, NNMC, Bethesda, Md.

1. Abstracts of Research Reports of Projects Completed in Partial Fulfillment of Requirements of the General Postgraduate Course and the Residency Programs, June 1964.

U.S. Naval Medical Field Research Laboratory, Camp Lejeune, N. C.

1. Water Discipline and Performance of Marine Infantrymen: MR 005.01–0030.4.1, October 1964.
2. User Test of "Kwik-Kold" Cold Pack: MR 005.12–6001.6, October 1964.

Naval Medical Research Unit No. 4, Great Lakes, Ill.

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5. Tolerance of Mice X-Irradiated in an Oxygen Rich Environment to Explosive Decompression: MR 005.13–1002 Subtask 2, May 1964.
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4. Chromosome Abnormalities in Liver and Marrow of Mice Irradiated with Fast Neutrons, Gamma-, and X-rays. Effect of Dose Rate: MR 005.09–5200 Subtask 3, April 1964.

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11. Simplified Preparation of Blood Hemolysates for Electrophoretic Determination of Hemoglobin Type: MR 005.09–1601.7.6, April 1964.
12. Virus Isolations from Mosquitoes in Okinawa: MR 005.09–1406 Subtask 2 Report No. 3, April 1964.
13. The Pig-Mosquito Cycle of Japanese Encephalitis Virus in Taiwan: MR 005.09–1406.2.4, April 1964.
14. Intestinal Morphology in Human and Experimental Cholera: MR 005.09–1040.1.12, May 1964.
15. Hapotoglobin Distribution in a Filipino Population: MR 005.09–1601.7.5, May 1964.
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It is estimated that 1% of all live-born infants have some abnormality of the chromosomes, and that about the same percentage have serious diseases or disabilities due to gene mutations. In addition, congenital malformations with a multifactorial genetic basis are estimated to occur in 1.5% of all live-born infants and in 1% of children at the age of 5 years.—WHO Chronicle 18(12): 474, December 1964.

DENTAL SECTION

REPORT OF SURVEY ON TEACHING ANESTHESIA IN DENTAL SCHOOLS

Bruce L. Douglas DDS MA MPH, Chicago, Illinois, Jour Den Educ 28(2): 211-213, June 1964.

A recent study of 48 schools in the United States and 6 in Canada revealed that of the 54 schools 45 still conduct the teaching of anesthesiology under the auspices of departments of oral surgery.

Four schools stated that anesthesiology is administered by independent departments of anesthesiology: University of Pittsburgh, Loyola University (New Orleans), University of Toronto, and McGill University. The Canadian schools were not included in the former survey. The reply from 1 of the schools in the United States indicated that its independent department of anesthesiology is under the supervision of an affiliated hospital and that local anesthesia is taught by the department of oral surgery in the dental school. In a sense, this pattern eliminates the basis for saying that this school has an independent department of anesthesiology which handles, through administrative mechanisms, all aspects of pain control.

The obvious points revealed by the study are that (1) anesthesia teaching to dental students remains inextricably related to the teaching of oral surgery, and (2) noticeable trends to establish anesthesiology as a separate discipline have not developed.

Additional points are that (1) the theory of anesthesia is buried in the various basic science departments; (2) the nature of drugs used in anesthesia is taught in most institutions in the course of pharmacology, although only 1 school of the 54 included this fact in the replies to the survey; and (3) general anesthesia, underemphasized in almost all undergraduate dental curricula, is frequently handled by an affiliated hospital or medical school.

What does the future hold? A continuation of the present relation between oral surgery and anesthesia in dental education seems inevitable for at least some years to come. This conclusion is based on the fact that there is a dearth of qualified persons, other than oral surgeons, to handle the teaching responsibility of operating a separate department of anesthesia. Further, most dental administrators probably would find it illogical to have an oral surgeon teaching anesthesiology, and to separate that teaching from the functions of the department of oral surgery.

If an oral surgeon is to teach anesthesia, he can do justice to the long-range objectives of the academic task only by doing so primarily as a dentist not as a specialist. It will be only when anesthesiology and the general principles of pain control are taught by dentists, whether they be specialists or general practitioners, that students will grasp the fundamental concept that these principles apply equally to operative dentistry and exodontics—that premedication, local anesthesia, and, even, general anesthesia have their places in the general conduct of dental practice, and not only in the area of oral surgery. When dentists who are not oral surgeons teach dental students how to control, alleviate, and eliminate pain, then, and only then, will the students take the responsibilities of learning to write prescriptions and of administering drugs to make all dental care more tolerable and safer. So long as pain control is linked with oral surgery, there are roadblocks to the accomplishment of this important objective of dental education.

CLINICAL EVALUATION OF AMALGAM CAVITY DESIGN

L. G. Terkla and D. B. Mahler, University of Oregon Dental School, Portland, Jour Den Res 43(5) Part II: 921-922, Sept-Oct 1964.

The purpose of this investigation was to evaluate certain aspects of amalgam cavity design on the basis of clinical performance. Two designs of a Class II amalgam cavity preparation in mandibular second bicuspids were investigated. Design A is described as a base cavity (G. V. Black's design) with no retention other than the occlusal and proximal dovetails. Design B is the same as Design A except for the addition of buccal and lingual interproximal retention grooves prepared with a small tapered fissure bur. According to previous laboratory tests where amalgam restorations were fractured out of metal model teeth, Design B was 25 per cent more resistant to fracture than Design A. Approximately fifty restorations of each design have been placed and evaluated for 1 year. Twenty-eight of these restorations have been evaluated at 2 years from the time of placement. The amalgam was manipulated and carved in accordance with present concepts of optimum procedure. The restorations were evaluated in the mouth using a 40-power examination microscope.

No isthmus fractures were observed for either design, indicating two possible conclusions: (1) the lack of interproximal retention does not make an amalgam restoration any more susceptible to clinical isthmus fracture than the presence of interproximal retention or (2), a 25 per cent decrease in resistance to fracture of Design A, as established by laboratory procedures, does not appear to lower the resistance of amalgam restorations to clinical fracture. These conclusions are based on the conditions imposed in this investigation.

EFFECT OF MULTIPLE STANNOUS FLUORIDE TREATMENT ON CARIES INCIDENCE IN CHILDREN

David Bixler and Joseph C. Muhler, Indiana Univ Med Cen, Indianapolis, Jour Den Res 43(5) Part II: 784, Sept-Oct 1964.

In an earlier report, data obtained from a human clinical study were presented to show the effect of various combinations of methods of applying SnF_2 topically upon dental caries incidence. That report gave results at the end of one year. This report is concerned with the results at the end of two years. Subjects were children ranging in age from seven to nineteen years and were divided into five experimental groups. Approximately one-half of each group was examined by one examiner and one-half by another examiner. Groups I, II, III, and IV all received treatment with SnF_2 prophylactic paste. In addition to the prophylactic paste treatment, Group II subjects received SnF_2 dentifrice for home use, while subjects in Group III received a topical application of 8 per cent SnF_2. Subjects in Group IV received all three topical SnF_2 treatments. Group V subjects received placebo treatments and served as controls. All subjects were treated each six months. Results after two years show that both examiners observed quite comparable effects. The SnF_2 prophylactic paste alone gave a 34 per cent reduction in dental caries. An addition of only the SnF_2 dentifrice or the topical application did not appear to add to the effect of the SnF_2 prophylactic paste treatment. The combination of all three stannous flouride treatments was significantly more effective than the prophylactic paste alone.

Editor's Note: This again points up the *extreme importance* in the Navy Preventive Dentistry Program for the dental officer and technician to impress patients of the great need for using a stannous fluoride dentifrice during the months following a SnF_2 prophylaxis and topical application. The success of the program apparently hinges on the "follow through" as borne out by the New London study also.

BONE RESORPTION AFTER IMMEDIATE DENTURES AND AFTER CONVENTIONAL DENTURES

*Wictorin, Lennart, Royal School of Dentistry, Stockholm, Sweden, Acta Radiologica Sup. 228: 1-97, 1964. Dental Abstracts 9(10): 620, Oct 1964.**

Less resorption of the maxillary alveolar process occurs after immediate dentures have been inserted than occurs when conventional dentures are received after a healing period of three months has passed.

Several factors probably are responsible. The immediate denture protects the alveolar process against thermal and mechanical injuries during the first phase of healing after extractions. The wearing of a well-fitting denture is more favorable to the alveolar process than is the absence of a denture during the first three months after teeth have been extracted. It is easier to masticate food with a complete denture than with no denture. The denture can also distribute the masticatory forces over a larger supporting area, and can give the tissues more suitable stimuli. During the first few weeks after extraction the immediate denture acts as a bandage to the sockets.

It was concluded that most of the difference in bone resorption between the two groups was due to the different clinical treatment of the groups.

NEW AND MODIFIED DEVICES FOR USE IN ORAL SURGERY

*CAPT Donald E. Cooksey and CAPT Clifford H. Prince, DC USN, Dental Abstracts 9(9): 541-542, Sept 1964.**

Three new or modified instruments have been found helpful in oral surgery. The first instrument is a marking and measuring gauge for determining the direction of the original bone cut in vertical osteotomy for the surgical correction of malocclusion. It is made of 19-guage (0.036-inch) stainless steel bent into a twist so that the handle will lie flat against the neck. The tip is a simple blunted hook. The leading edge is straight with the hook projecting beyond it. Both sides are graduated in millimeters and numbered. In use, the instrument is hooked into the coronoid notch and adjusted to the desired position at the mandibular angle. A line is then made on the ascending ramus with gentian violet to guide the cut.

The second instrument is a modification of the "Army-Navy" right-angle retractor. On extremely long ascending rami, the retractor blade of normal length does not expose the coronoid notch. This forces the surgeon to extend the excision, thus making a large facial scar. Also, the normal retractor blade does not

give adequate space for free use of the straight air-driven handpiece customarily used to section the mandible. The instrument has been modified to lengthen the blade and to provide an arch to accommodate the handpiece better.

The addition of these two instruments to the armamentarium for vertical osteotomy facilitate access and orientation in this procedure and improves the lighting and visibility.

The third instrument is a modification of circumzygomatic wire introducer described to the authors by George Morin of Georgetown University and illustrated in G. O. Kruger's Textbook of Oral Surgery. The original instrument was so designed that the operator could become disoriented as to the direction of the bend in the shaft once the instrument was introduced beneath the tissues. The thumb rest has been placed on the handle in the direction of the bend, making it possible for the surgeon to visualize the direction of the bend at all times. When subfacial wires are being placed, use of this modified instrument reduces operating time by more than half.

DENTAL CARIES

*Peter P. Dale, JAMA 188: 1024-1025, June 15, 1964. Dental Abstracts 9(10): 617, October 1964.**

Dental caries is unique, progressive, unhealing, irreversible, and a concomitant product of civilization without regard to age, sex, race or economic status.

The well-informed, competent dentist with the cooperation of his pedodontic patients and their parents can easily prevent or control caries. Basically, the carious process is a factorial triad consisting of cariogenic bacteria, a suitable substrate or diet and a susceptible tooth. The process involved (1) the retention of fermentable carbohydrates, (2) the presence of microorganisms on the tooth surface, and (3) a physical or chemical susceptibility of the enamel surface to the products of the interaction of (1) and (2).

The frequency of ingestion and the form of sweets are more important than the total amount consumed. The amount of caries is related directly to the number of between-meal candy eating sessions. The longer the carbohydrate is in contact with the tooth surface, the greater the opportunity for acid production and subsequent decalcification. If sweets are permitted, it is better to ingest them with meals.

Toothbrushing, ingestion of detergent foods and use of nonmedicated oral rinses are recommended because of their esthetic value, beneficial effects to the gingivae and possible interference with caries activity; however, one cannot expect brushing or rinsing alone to prevent caries.

Rational procedures for prevention and control are: (1) fluoridation or use of topically applied fluorides in the form of solutions, lozenges, chewing gum, dentifrices or gels; (2) early, routine, periodic dental appointments to condition and educate children and their parents regarding the prevention and control of oral disease; (3) well-balanced diets with restriction of between-meal fermentable carbohydrates; (4) conscientious toothbrushing and dental flossing; preferably just after meals, and (5) better cooperative planning and understanding of caries prevention and control among parents, children, pediatricians, schools, parent-teachers' associations, the health department and other community organizations.

PERSONNEL AND PROFESSIONAL NOTES

Naval Dental Corps Offers New Correspondence Course. The Naval Dental Corps is offering a new correspondence course, *Dental Administration* (NavPers 10736–B). The U.S. Naval Dental School prepared the course, which replaces two former courses, *Dental Department Administration* (NavPers 10736–A) and *Dental Clinic Administration* (NavPers 10401–1). Also replaced are the texts for those courses, which included a supplement, *Fiscal and Property Management in Dental Facilities* (NavPers 10840).

The text for the new course, *Dental Administration* (NavPers 10483), is the first naval dental text published in looseleaf form to permit page changing. This should prove helpful because improvements in organization, administration, and management occur so frequently that almost any text covering those subjects will contain some information that is outdated even before it leaves the presses.

The new course is designed to inform the dental officer of his duties, and of the policies and practices of the Bureau of Medicine and Surgery and the Department of the Navy, as they relate to efficient organization, administration, and management of each type of dental facility ashore and afloat.

Dental Administration consists of 11 assignments and is evaluated at 22 Naval Reserve promotion and/or retirement points. Enrollment in the course can be accomplished by applying on form NavPers 992 directly to the Commanding Officer (Code E–43), U.S. Naval Dental School, National Naval Medical Center, Bethesda, Md. 20014. Inquiries regarding eligibility for the course should be sent to the same address.

New Stannous Fluoride Preventive Dentistry Kits Available. The Procter and Gamble Company has discontinued current Kits #7073 and 7074.

Two new kits are available. *#7088*—Contains 5 lbs Special Pumice Mixture, 0.3 gm stannous fluoride—2.0 gm pumice scoop, and directions for use. Price $10.00. *#7089*—Contains 350 gm stannous fluoride,

0.3 gm stannous fluoride—2.0 gm pumice scoop, 1.0 gm stannous fluoride—0.8 gm stannous fluoride scoop, 10 cc mixing vial, 1 cc dropper, 100 patient education pamphlets, and directions for use. Price $6.00.

This is f.o.b. destination within the United States and terms are net cash. To order write to: Miss K. C. Daniels, Procter and Gamble Distributing Company, Winton Hill Technical Center, Cincinnati, Ohio 45224.

U. S. Navy Dental Officer Presentations. CAPT Bruce K. Defiebre DC USN, U.S. Fleet Activities, Sasebo, Japan, hosted a professional symposium on 19 Nov 1964. LT William F. Hohlt DC USN, USS AJAX (AR–6), presented an illustrated case history of Erythema Multiforme.

The monthly meeting was attended by dental officers of the Fleet Activities, Sasebo; USS AJAX, and local Japanese dentists.

CAPT Robert F. Tuck Has Been Called to Head Reserve Branch. CAPT Robert F. Tuck DC USNR, commanding officer of Chicago's Naval Reserve Dental Co. 9–3 has been called to active duty to head the Reserve Branch of the Dental Division in BuMed. He relieves CAPT Harry J. Wunderlich DC UNSR.

OCCUPATIONAL MEDICINE

AUTOMOBILE INJURIES A NATIONAL EPIDEMIC

Peter Fisher MD, Seattle, Washington. Archives of Environmental Health 9(6): 798-805, December 1964.

An epidemic is a widely diffused and rapidly spreading disease. Automobile accident injuries fit this description in every way. The facts concerning cause and prevention of automobile accident injuries are not well enough understood. Effective group effort is minimal. If the information already known were applied to automobile safety and accepted by everyone including purchasers and drivers of motor vehicles, the automotive accident death rates and injury rates could be reduced.

INCIDENCE

Slogans and statistics alone make a limited impression on the ordinary driver despite the fact that most of us have had personal experience with death or important injuries due to motor accidents. Nonetheless, the statistics are startling and must be reviewed. There occurs, in the United States, from automobile accidents, one death every 14 minutes and an injury every few seconds. The story of 40,000 yearly deaths is not the most important story. More grim is the fate of more than a million permanently mutilated survivors each year. Estimates of the number vary, primarily because of inadequate reporting. Official sources indicate that five million people each year are injured sufficiently to miss a day of work or seek medical care. Such injuries have replaced infectious diseases as the fourth ranking cause of death in the United States for all ages, and are now number one for children ages five through 14 years. More than 1⅓ million people have died from automobile injuries in the United States since the invention of the automobile. Most accidents occur within 50 miles of home at driving speeds under 40 mph. In the United States, on one single day, July 4, 1961, there were 504 deaths and 51,000 disabling injuries resulting from automobile accidents, including pedestrian injuries.

SOURCES OF INFORMATION

Statistical evaluation provides information for future planning. Governmental agencies routinely use accident reports for this purpose. A new technique, now being used consists of extensive analysis by a trained team of experts including physicians, engineers, psychologists, mechanics, and others to learn the complete case history of each accident in consecutive automobile fatalities. This includes thorough analysis of the backgrounds of the decedents, circumstances of the accident, role of the automobile, highway, climate, and motivating factors. Extensive sociological investigation of decedents and survivors, with psychological testing of the latter, minute dissection of the automobiles, extensive autopsy studies, analysis of hundreds of photographs of the accident scene and equipment involved are all carefully performed. Very startling information is forthcoming about automobile failures, psychological causes, need for highway improvements, and, on occasion, suspicion of suicide or homicide by automobile. Information can also be pieced together to show who was driving, the path of projection of all occupants, and the structural com-

ponents of the automobile that caused or contributed to death.

Another approach is by planned collision to learn about the structural integrity of the automobile as well as passenger dummy and cadaver acceleration and deceleration forces. There have been reviews of patterns of automobile injuries relative to specific parts of the body, human motivation, and projection patterns of occupants. Finally, this information is disseminated publicly and among interested professional people in the form of conferences by leaders in the field. Another statistically insignificant but sometimes emotionally powerful tool is the old fashioned testimonial, commonly used to promote sales of a commercial product. It is being used more and more to tell the story of automobile crash survival by prominent people.

One unique area that yields crash information is the sport of automobile racing. This has been a fertile field for testing protective devices and automotive structural integrity. Proper inspection and maintenance of equipment is followed fanatically by most racing drivers. Oddly enough, no matter how intelligent or competent race drivers may be, the majority never voluntarily use proven devices for their own safety. All current improvements, such as seat belts, helmets, roll bars, flame retardant clothing, proper suiting, and shoeing, have been forced on them. Prerace examination of drivers at a professional midget automobile race track proved to have only one purpose—to eliminate the driver who was drunk. On one occasion at an "Indianapolis type" race, a driver had a full-blown grand mal seizure while driving, sustaining severe injuries. It was later revealed that this was not the man's first seizure; some of his competitors knew this but did not disclose it.

ROLE OF ALCOHOL

The alcohol factor must be treated as a special point of interest because of its important statistical ranking. In a controlled study in New York City, it was shown that 73% of drivers responsible for accidents in which they had died had been drinking. A control group of comparable drivers not having accidents showed 26% had been drinking. The person under the influence of alcohol is the major offender. He repeats and repeats the "near miss" until his catastrophe occurs, as statistically it must. Professional people informed about the problems of chronic alcoholism have learned the futility of attempting to change this pattern by the use of slogans and advertisements. It is becoming obvious that more than half of the fatal and injury producing accidents are caused by drinking drivers. If there were such clear-cut evidence about the cause of cancer, there would be a public demand to put an end to it.

Where does the difference lie between drinking "just a little", having driving performance affected, and being drunk? This has been studied extensively. There is general agreement. Though individual differences do exist in the rate of alcohol absorption and performance deficit, there is almost complete agreement about the physiological significance of the blood alcohol level and its relationship to performance. Yet, legal definitions differ. Generally, a blood alcohol level of 0.15% is accepted as proof of significant intoxication caused only by rapid ingestion of large quantities of alcohol which, in all cases, severely affects performance. This figure is undoubtedly liberal—extending individual leeway to a point beyond any shadow of a doubt. In New York, the top figure is 0.10% and in Norway, since 1926, it has been 0.05%. Oddly, in the United States, a figure of 0.05% exonerates the individual although it is known that, at this level, extensive ingestion of alcohol must have occurred and some performance impairment can be measured in almost all people. On the average, 5 oz of 70 proof whiskey produce blood alcohol levels of 0.05%, 7½ oz, 0.10%, and 10 oz, 0.15%. There is evidence to show that impairment begins at 0.03% to 0.04%. A marked increase in personal injury accidents has been reported in people with blood alcohol levels of 0.03% to 0.05%. Alcohol as a major cause of automobile injuries is not limited to the driver. In a study of 200 fatal pedestrian accidents in New York City, increasing age and consumption of alcohol were the two major identifiable characteristics. About half of those involved had measurable blood or brain alcohol levels.

WHAT CAN BE DONE

Better Control of Drivers. About 80 million automobiles are driven today. Seven out of ten people will have an important accident within the next ten years, a surprisingly low estimate in view of the kinds of diseases to which drivers are subject—impaired vision and hearing as well as fatigue and the effects of alcohol and drugs.

Drivers may be angry, old and infirm, young and inexperienced, or motivated by aggressions which cause them to use automobiles as lethal weapons. Another group of drivers are simply inattentive and unimpressed with safety devices.

Restrictive programs which have met with some success have been devised in an effort to select drivers who may be safe. Since driving is a necessity in the pursuit of gainful occupation for most people, drivers do not readily submit to examinations that might disqualify them; physicians are caught in the middle in attempting to keep unfit drivers off the road, for such patients merely find other physicians promptly.

Driver examination and legislation concerning fitness are tragically inadequate in most states. Epilepsy is a case in point. Many drivers cannot obtain driver's permits after a blackout spell although they are on adequate suppressive medication and have had no recent seizure; yet others with Meniere's syndrome, periodic

paralysis, or narcolepsy, etc. are unexamined and unrestricted. Uniformity of laws and individualization of applications are sorely needed.

Packaging People for Safety. Physical restraint of the automobile occupant seems to be the most fertile field for changing injury patterns. The physician can play a prominent role by advising his patients to install and use safety belts just as he advises prophylactic vaccinations. Not satisfied with influencing his patients alone, a Corvalis, Ore., physician has supplied the spark which resulted in the installation of 1,700 seat belts in a city of 21,000 people.

What the Air Force is Doing. Since more Air Force personnel were being injured and killed from auto accidents than from aircraft mishaps, an accident prevention program was begun by the Air Force. It included mandatory basic driver training for those under age 25 with special training for those assigned driving as part of their duties. Local orientation was begun, discussing factors peculiar to the area, such as climate and highway factors. Helmets were made mandatory for all cycle and scooter drivers. Efforts were made to reduce early morning accidents by encouraging personnel to return to the base earlier and more slowly. This involved telephone calls to the homes of personnel toward the end of leave time. There was also an extensive investigation of each fatality. There was an immediate 37% decrease in fatalities. In the last three years, it is estimated that the lives of 400 Air Force personnel have been saved through this program.

PRESENT STATUS OF SAFETY PROGRESS

Since the human body cannot be redesigned, we must turn to change of automobile design. The automobile can be sold without restriction or inspection despite the fact that it kills thousands and injures millions of its customers every year, a dismal and probably unmatched record. A motorist should have no greater opportunity of buying a car without proper safeguards such as safety belts than he should of buying uninspected meats. Driving carefully is not enough. After a crash investigation, one particular tree was the object struck in several serious accidents—and each time, a tree surgeon repaired the tree. Cars and roads must be made safer.

Four-wheel and hydraulic brakes appeared in the late 1920's; safety glass, all steel bodies, and improved steering appeared in the 1930's. From that time on, emphasis has been on comfort, power, performance, and appearance. Finally, in 1956, safety latches were used, the last significant standard improvement until very recently. The Ford Motor Company did produce and advertise some devices such as seat belt attachments and recessed steering wheels, but sales dropped over the next year, making it apparent that safety did not sell, so these ideas were dropped generally. There are already many proven practical safety devices not used by the automobile industry but there have been important strides made by the industry in 1962 and 1963.

Experts have pointed out that education takes time, but that automobile designs and structure can be changed quickly. For two generations, the automobile industry has been redesigning its product every year but with almost no consideration of performance in crash situations although one half the automobiles made will be involved in injury-producing crashes. Minimal efforts in 1956 produced door locks that will not easily open in a collision, preventing passenger ejection. More recently, holes were drilled or punched in the floor to make seat belt installations for the front seats a trifle easier. What is really needed is complete redesign. The weirdest fins are harder to make than the safest instrument panel; the fanciest grille is more expensive than the safest automobile seat.

THE SEAT BELT STORY— FACT AND FICTION

It has been proved without doubt that a restraining device will, if properly used, decrease the injury rate and usually minimize the extent of injury. These devices are readily available and inexpensive; yet, only about 2% of the driving population has them, less than that use them, and very few of these have complete protection devices for all passengers despite the fact that crash studies fully document the protection offered. Movies of human and dummy demonstrations with and without restraints demonstrate the value of such devices. Belts are particularly important in roll-over accidents, which constitute a fifth of all fatal rural accidents, and in ejection accidents where an otherwise modest collision is transformed into a lethal one when the occupant flies out the door, strikes his head on the road, or is run over by his own or another automobile.

The question is continually raised—what about fire? This is rare in accidents; escape from a belt can be accomplished easily and instantly. What if the occupant is unconscious? Then, of course, he cannot escape unaided with or without a restraining device. This one additional fact is often overlooked: In case of fire, there has usually been a severe accident. If the passenger has been restrained, then, he minimizes his danger of unconsciousness or inability to move because of severe injury.

What type, make, and grade of seat belt device is best? It is generally agreed that a combination of lap belt and diagonal strap is the best compromise between safety and ease of use. Sweden uses these extensively—in fact, belts are never sold singly. Recent studies have shown that a diagonal chest strap without a lap belt will not restrain sufficiently; it is possible to slither out underneath it. It has been shown further that the diagonal chest strap is best attached to the

roof or door post rather than the floor. This type of protection is particularly important in the small car where the head might strike the windshield or dashboard despite adequate hip restraint. Many people strongly advocate "going all the way" in the United States and not permitting the sale of lap belts without diagonal supports. Most experts agree that lap belt protection alone in the larger American cars offers nearly as good protection and probably is much easier to "sell." Belts can be of various materials, shapes, and descriptions. Present standards should require a 5,000 lb test load and no failure of attachments or fabric to tear loose. In recent tests, many belts now being sold have proved inadequate. However, even if a belt should break, it may have already absorbed sufficient energy to prevent important personal injury. Perhaps the most important consideration of all is complete passenger protection. Back seat passenger protection in crashes may be more important than front seat passenger protection. Often, the back-seat passenger flies into the back of the front seat, over the front seat, or out the front window, or strikes the front seat passenger, causing the latter his only injury. A youngster standing on the back seat is particularly unstable. Back-seat belts and infant harness supports are commercially available. Great emphasis is placed on child health; yet children are permitted the unnecessary lethal exposure of unrestrained back-seat riding.

Practically all seat belt users agree that restraining devices add to comfort rather than detract from it. The devices give a feeling of security and stability and permits relaxation. No effort need be made to prevent buffeting from bumps, turning of corners, or sudden stops. The mother driving with her children in the back seat is more comfortable than when the children jump about, crawl over her, and fight with each other.

Have seat belts helped reduce injury? The duPont experience is an example. By 1960, the E. I. duPont de Nemours & Co. had made the use of seat belts mandatory on all 1,792 company cars. In that year, no time was lost from automobile accident injury.

DESIGN FOR THE FUTURE

It has been demonstrated with human subjects that a properly restrained person can decelerate from 60 mph to full stop within three feet without personal injury. Less is known about impact survival levels of head acceleration in man. Protective head gear is being made more and more effective. When an automobile comes to a crash halt, a second collision occurs within the car milliseconds later. Initial force propels the occupant forward with an impact equal to the deceleration rate times his own weight. If he weighs 150 lbs (68 kg), he may strike with an effective weight of 15 tons. Instruments have shown readings of 200 g at peak deceleration. The body is hurled at a straight course toward the collision until all motion is stopped. All this may take a fraction of a second or may last a few seconds.

Analyses have been made of 45,000 automobile injuries, showing the major causes of injury within the automobile. Evaluation is difficult because a frequent cause of injury may be less important than an infrequent but more serious injury-producing obstruction. In the order of importance, injuries are due to: instrument panel, ejection, windshield, steering assembly, door structures, flying glass, backrest of front seat, rear-view mirror, front corner post, and top structures. No studies of this nature have been reported with the use of seat belts.

Professor Ryan, pioneer in automobile safety, built his own car with the following devices added: seat belts, hydraulic bumpers independently hinged that would absorb and diffuse impact energy, recessed dashboard that could not be hit by the knees or head, padding under the dashboard, and padded and receding steering wheel. Others have added padding of all interior surfaces with energy absorbing materials; frame, engine, and body structure designed to absorb much of the impact energy of collision; recessed control knobs and door handles; removal of protruding ornaments inside and out; roll-over bars; air intake and blow by exhaust eliminators to decrease the chance of carbon monoxide leaking into passenger compartment; collapsible steering shaft to give way under the impact of two and a half g's; blowout proof tires; antiskid brake system; ash trays and glove compartments which, when popped open, will not inflict fearful facial injuries; cushions and seats which cannot fly about; uniform position of control knobs with handles of distinctive design so that, even at night, they can be identified by touch. An example of such a revolutionary car is the Survival Car II outfitted by the Liberty Mutual Insurance Co.

Other publications have stressed additional equipment to include padded headrests to prevent whiplash types of injury, removal of tinted windshields, use of tempered rather than laminated glass, better engineering to prevent interference between use of brake and accelerator, steering wheel too close, and so forth. Use of moving rather than blinking directional signals; standardization of rear lamp position, color, and relative intensity; use of separate brake light; colored rear-light indicator when foot leaves gas pedal; gas pedal pressure speed control device without forced governing of speed; visual and auditory speed warning devices; brake pedal to be used by either foot; rigid bumper back-up plate with energy absorbing material between it and the bumper; complete wrap-around bumpers rigidly attached to frame and having energy absorbing padding; fuel-monitor light to warn against inadvertent stopping on high-speed highway, 180° forward visibility from driver's seat; no headlight shades (to minimize pedestrian injury); rounded hoods to protect pedestrians; no sharp hood ornaments; red night light

illumination of dashboard; recessed ceiling lights; rear windshield wipers and defrosters; recessed package shelf; roll-over strength in roof; roof padded on inside to protect against head injuries; inertia reel seat belts; constant radius of curvature in windshield to prevent distortion; fuller sweep design of windshield wipers; and design of seats moulded to person's natural pressure distribution.

WHAT KIND OF GLASS TO USE

The first true safety glass appeared in the 1920's. This laminated glass consisted of two sheets of glass bonded to a tough sheet of plastic. It undoubtedly saved many lives but can be broken. When penetration occurs, the resulting lacerations can be extensive. Tempered glass is harder and requires greater force to break, but, when it does break, it disintegrates into myriads of pea-sized round particles that will not lacerate. It has been used in the back window since the 1930's, and, for several years, in side windows. The primary objection to its use in front is that, if it is struck but does not break up and fall apart, it may become completely opaque. This could occur from a flying stone in ordinary driving and would be an obvious hazard. In addition, glaziers do not like this glass because it cannot be cut into various sizes. Entire windows made to specifications must be used for replacement. The automobile industry is influenced by the facts that it is cheap to make and less likely to break.

SPECIAL STUDIES

Extensive, costly studies have been performed duplicating crash conditions using various makes of automobiles with planned engineered collisions at specified rates of speed, angle, and position of impact and outfitted with anthropometric dummies. Careful analysis of all crash forces is made, and extensive pictorial measurement is made by at least 25 high-speed cameras inside and outside the automobiles, taking pictures at the rate of 1,000 or more frames per second. These studies have been daring, imaginative, and have provided information of incalculable value. A normal speed picture of dummy movement in a collision may reveal nothing of great interest. Upon review of the same picture under extreme slow motion, it can be seen that, often, the dummies leave the backseat, fly into the front seat under the dashboard, and back again to a sitting position on the back seat. These dummies are tested with and without restraints, vary in weight and size, and are fully instrumented with accelerometers. These studies confirm the facts that safety door latches on all cars since 1952 afford considerable protection against ejection. In addition, roll-over accidents have decreased since there has been a lowering of the center of gravity.

WHAT ELSE CAN BE DONE

Physicians Can Help. Health Advice regarding automobile safety should be part of medical care in the doctor-patient relationship and by public forum to encourage better car design and set an example for better driving, decreased alcoholic intake before driving, and to encourage legislation where indicated. The special problems of automobile safety are being treated as a special course in one medical school—which is realistic since automobile fatalities outrank infectious diseases as a major cause of death.

What Can Be Done by Insurance Companies. It has been suggested, with some wisdom, that insurance companies could benefit themselves as well as help promote safety measures by lowering insurance rates or increasing benefits for cars with proper safety devices, especially seat belts, and by insisting on their use in public carriers such as taxicabs. They might recognize, by some sort of merit award, accidents involving automobiles where safety devices appeared to minimize personal injury.

What Can Be Done by Government. Strong encouragement can be given free enterprise to promote existing safeguards. Legislation can be pushed where it seems necessary; law enforcement can recognize the merit of use of safety devices and consider such use a basis for leniency in dealing with offenders; and all government vehicles could set a standard for practice in safety device utilization as well as in automobile selection. One slightly helpful trend is "Good Samaritan" legislation, holding the physician harmless for malpractice suit when he stops to help an injured motorist or pedestrian.

HOW BAD ARE THE INJURIES

There is much written and gossiped about the "Green Poultice Treatment" of spine injuries. This actual phrase was used publicly in a paper by a leading physician at a medical convention, recently. Engaging in irresponsible statements and petty debate will not help the injured driver nor prevent accidents. False claims can be expected. So prominent are the doubters that almost the only group of physicians who really understand the symptoms produced by spine injuries are those who have had them. Evidence is abundant showing the frequency with which severe fractures are missed in physical examination and by x-ray. The fantastic gyrations and forces applied to the neck region in unrestrained subjects undergoing rapid acceleration or deceleration can be appreciated only through observation of high-speed motion pictures. These devastating events can occur with modest impact forces causing very little monetary damage to the automobile and no immediate signs of injury. Personal accounts by responsible people involved in these accidents are legion.

SUMMARY AND CONCLUSIONS

A comprehensive review of the present status of knowledge of factors relating to automobile injuries is presented. The general disregard of proved safety measures is emphasized. Suggestions for significantly lessening the incidence and degree of injury and frequency of fatality are presented. Most prominent among these is the immediately available, reasonably inexpensive, proved method of passenger restraint—the seat belt. Almost as important, but much less easily achieved in view of past failures, is the need for better automobile design, inside and out.

SPECIAL ARTICLE

UNITED STATES NAVY TOXICOLOGY UNIT

NNMC News, NNMC, Bethesda, Md., 20(11):3, November 16, 1964.

TOXICOLOGY UNIT PROVIDES REAL SERVICE TO FLEET, ENTIRE NAVY

The U.S. Navy Toxicology Unit started operations in October 1959 in response to the urgent need of the fleet, particularly the Polaris Fleet Ballistic Submarine, for rapid practical answers in the area of toxicology.

The Secretary of the Navy at the time of its establishment stated that the mission of the Unit was "to provide technical and specialized services in the fields of operational toxicology and health engineering as related to toxicity problems encountered aboard ships and in the design and use of new weapons systems, and to develop and provide biological data necessary for determining permissible limits so that precautionary measures, conducive to good health practices, may be prescribed."

What do all these words mean? On 17 January 1955, less than 10 years ago, the USS Nautilus was the first ship to get "underway on Nuclear Power." Since that time the Polaris missile system has been developed. The 26 Polaris submarines we already have in operation are a major element of United States deterrent strength. In addition, the 20 nuclear powered attack type submarines in operation are a vital part of our fleet's attack and antisubmarine forces. Since the first Polaris submarine went to sea in 1960, none has been late in deployment, none has aborted a mission, nor has any submarine returned early. We would like to believe that in a small way, the Navy Toxicology Unit has contributed to this magnificent accomplishment.

Along with the tremendous increase in the capabilities of our nuclear powered submarines, many new health problems have been generated. Fleet ballistic submarines, for logistic reasons, must remain submerged for long periods of time—at least 60 days. Personnel aboard must be given clean air to breathe so as to avoid the development of any occupational medical diseases and also to make sure that the men can work without any degradation in performance.

The submarine atmosphere in general has been made as clean as the air in most cities. This is accomplished by standard air-conditioning to control temperature and humidity, by scrubbers to remove carbon dioxide, by burners to remove carbon monoxide, and by electrostatic precipitators to remove dust and particulate matter. It is interesting to note that the largest amount of impurities in the air of a sub are produced by men smoking.

In addition to cigarette smoke there are some 200 trace contaminants which must be guarded against. These would be unimportant in an industrial plant or in city air, but become of real concern in the confined space of a submarine. In submarines men are exposed continuously 24 hours per day, with no chance for a "breather," with no opportunity to go home after the day's work or to have the weekend off and go fishing in the country. They must continuously remain in the confined space on the sub and breathe the air available to them.

The major objective of the Unit is to screen all materials and chemicals going aboard a submarine for toxic potential. This includes all operation chemicals and equipment such as hydraulic fluids, solvents, paints, fast printers, as well as as personal items such as hobby kits, shaving creams, lighter fluids and similar gear.

A specific example may help clarify the role of NTU. The Bureau of Ships, after long research, has come up with a promising hydraulic fluid which meets all of the engineering requirements and now desires to utilize it aboard ship. It has no data on the potential health hazard and now turns to NTU for assistance.

The first step in screening a material is to run acute studies to see what would happen if the material comes in contact with the skin or the eyes, or if accidentally

swallowed. This is conducted by the staff of the Pharmacology Department on rabbits, guinea pigs, and rats. It was learned that paralysis might result if too much of the material is introduced into the body. This helped to set up safe handling procedures and the necessary health precautions in case of an accidental spill.

The second step is to run long term continuous inhalation studies in which various species of animals are exposed under simulated submarine conditions. The chambers shown are equipped to disperse minute amounts of gases, vapors, dusts, and aerosols under carefully controlled conditions of temperature and humidity. Five species of animals are then maintained in these chambers for lengths of time approximating those which a sub may be required to maintain submerged and on patrol. These chambers are non-existent elsewhere in the Navy or the military.

All departments at NTU are involved in inhalation studies. One of the most difficult problems is measuring the minute amounts of contaminants in the chamber. This is done by the Chemistry Department by standard laboratory techniques and by the Health Engineering Department by means of highly specialized instrumentation. At all times during the study a constant check is maintained on the concentration present in the chambers. The Pathology Department does blood work, organ weights, autopsies, and histopathology; the Biochemistry Department does enzyme and tissue alteration studies; the Health Engineering Department is responsible for maintaining the prescribed conditions in the chamber.

With this team working as one it was found that if the concentration of the hydraulic fluid mist in air was held to a certain limit it could be used without threat to health. This information was then made available to the Bureau of Medicine and Surgery and to the Bureau of Ships and guideline limits for safe operation were established.

But there is a third phase. The Unit has a team in a constant state of readiness to go aboard ship to troubleshoot whenever necessary.

All animal toxicity studies are preliminary to the end-point sought, that is the effect that these military chemicals will have on man. Human experience still provides the most desirable type of data, but, until such time as controlled human experiments are run on a long term basis, we will be in a large measure dependent upon animal experimentation.

RESERVE SECTION

The Medical Service Corps was established with the passage of the Army-Navy Medical Services Corps Act of 1947 to satisfy a long-standing need for a permanent commissioned corps of specialists to complement the purely professional functions of the Medical Corps and Dental Corps. The original legislation provided for the Medical Service Corps to be comprised of four sections: The Supply and Administration Section, the Medical Allied Sciences Section, the Optometry Section, and the Pharmacy Section. The Act futher authorized the Secretary of the Navy to create such additional sections as necessary and, as a result of this authority and as the need was recognized, the Women's Specialists Section was established in 1952 and the Podiatry Section in 1953.

The Medical Service Corps contains a commissioned rank structure of ensign to captain, inclusive. All original appointments in the Corps are made in the grade of ensign, except for individuals with a doctorate degree who may be appointed in the grade of lieutenant, junior grade. The professional qualifications for appointment in the various sections of the Corps are as follows:

Supply and Administration Section. The principal source of procurement for this section is the senior hospital corpsmen and dental technicians on active duty in the Navy. Eligible enlisted members who apply for appointment must meet rigid standards of education, background, and performance; pass a thorough professional examination, and survive a comprehensive screening process conducted by a Naval Examining Board. Appointments in this section are also offered to civilian applicants or Naval Reservists not on active duty who possess a master's degree in hospital administration or public health administration or a baccalaureate degree with a major in sanitary science.

Medical Allied Sciences Section. This section is composed of officers qualified in professions traditionally allied to medicine and dentistry, including the following:

- Aviation physiology
- Bacteriology
- Biochemistry
- Biophysics
- Chemistry
- Entomology
- Environmental health
- Hematology
- Industrial hygiene
- Medical technology
- Microbiology
- Parasitology
- Pharmacology
- Physiology
- Psychology (clinical and experimental)
- Physics
- Radiation health
- Radiobiology
- Radiochemistry
- Radiophysics
- Serology
- Virology

Applicants for appointment in this section, with the exception of those in the specialties of aviation physiology, radiation health, and medical technology, must have a baccalaureate degree and have completed a minimum of 30 semester hours of graduate work in or relating to their specialty. Aviation physiology and radiation health applicants must have a baccalaureate degree with a major in one of the biological sciences. Medical technology applicants must have a baccalaureate degree and be registered by the American Society of Clinical Pathologists.

Pharmacy and Optometry Sections. Must have a baccalaureate degree from an accredited college or university with a major in pharmacy or optometry and be registered in one of the states or the District of Columbia. Optometrists who have passed Parts I and II of the National Board of Optometry Examinations are not required to be registered.

Podiatry Section. Must be a graduate of a college of podiatry (chiropody) accredited by the American Podiatry Association and be registered as a podiatrist by one of the states or the District of Columbia.

Women's Specialists Section. This section is comprised of women officers qualified in dietetics, physical therapy, and occupational therapy. Applicants for appointment as dietitians must have a baccalaureate degree with a major in foods and nutrition and must have completed a dietetic internship approved by the American Dietetic Association. Physical therapists and occupational therapists must possess a baccalaureate degree and have completed a course in physical therapy or occupational therapy approved by the Council on Medical Education of the American Medical Association. The Navy also has a student program wherein qualified applicants may be appointed as Ensign at the commencement of their final 12 months of professional training.

All appointments in the Medical Service Corps, except for those individuals appointed from in-service sources, are Reserve appointments and may be either for active or inactive duty.

Reserve officers are eligible to apply for a Regular Navy appointment after serving on active duty for 18 months. Medical Service Corps officers on active duty are assigned in all geographical and military areas wherein a research, operational, or training responsibility is assigned the Navy Medical Department. These areas of assignment include naval hospitals, research laboratories, preventive medicine units, Fleet Marine Forces, and various ships and stations throughout the world. Reserve officers not on active duty may participate in the Naval Reserve Medical Department program in other manners.

MISCELLANY

THE EFFECTS OF ANTIDEPRESSANT DRUGS

Antidepressant drugs and their effects, subject of a current debate by many doctors, have been analyzed by a National Institute of Mental Health psychiatrist.

Writing in a recent Journal of the American Medical Association, Dr. Jonathan Cole, Public Health Service, U.S. Department of Health, Education, and Welfare, discusses the "current concern" about these potent agents. Because of possible side effects and questions of efficacy of some of the dozen or so drugs now on the market, many experts believe they should be used with caution.

Because of their potency and possible side effects, Dr. Cole feels that neither group of antidepressant drugs should be the initial treatment for mild depressions. He suggests instead that treatment be limited to a sedative or tranquilizer, with antidepressant drugs used only if symptoms persist.

In a review of 72 studies of the drugs, Dr. Cole, Chief of the Psychopharmacology Service Center, concludes that imipramine and a chemically similar drug, amitriptyline, are the most effective of the antidepressants. Several studies show, however, that they are only moderately effective, and occasionally no better than placebo treatment and supportive care.

The imipramine types produce some side effects including dryness of the mouth and excessive perspiration, but many of these are "annoying rather than serious," he writes.

The evidence for the efficacy of the other major group of antidespressants, the monoamine oxidase inhibitors, is less convincing, Dr. Cole notes. Some depressed patients will respond specifically to them after other drugs have failed, but he emphasizes that the issue with the inhibitors is whether their therapeutic efficacy is sufficient to offset the potential risk.

Dr. Cole emphasizes that with both the imipramine-like drugs and the inhibitors, it is extremely difficult to predict which patients will respond successfully.

He adds that there is little evidence to support the efficacy of a third group of so-called antidepressants, including such stimulants as the amphetamines, in the treatment of depression.

Dr. Cole concludes that there is some encouraging preliminary evidence that the antidepressants may serve as valuable preventive drugs. "It may well be in

the long run that their importance will rest as much or more in their ability to avert relapses than in their efficacy as initial therapy. In contrast to electroconvulsive therapy, these drugs provide a convenient means for continued treatment."

In one controlled study, a six-month followup showed that patients maintained on imipramine had a much lower relapse rate than those taking a placebo. About 20 percent of the patients taking the drug relapsed, in contrast to 80 percent on the placebo.

ADAPTATION TO ORAL BIRTH DEFECTS

Research on the way people adapt physiologically to oral birth defects will be undertaken at the Cleft Lip and Palate Institute of Northwestern University, Chicago, under a grant of $170,000, Surgeon General Luther L. Terry of the Public Health Service, U.S. Department of Health, Education, and Welfare, announced.

The award from the National Institute of Dental Research is for the first year of a projected three-year study. Director of the research program is Dr. Stanley C. Harris, professor and chairman of the department of physiology and pharmacology of the Northwestern Dental School.

Commenting on the new research, Dr. Harris said, "Ideal surgical or prosthetic closure of an oral cleft would restore normal function if musculature in these structures were unaltered. Research in physiology is needed to understand normal muscle action, in the hope of learning the best methods of repairing an oral defect."

Dr. Harris explained that a technique known as electromyography permits measurement of the muscle activity of oral structures. "We can make electrical measurements of orofacial muscles in cleft palate patients and in persons without the defect," he said.

This project will gather information on differences between the breathing, eating, and talking mechanisms of normal people and the performance of these functions in cleft palate patients before and after treatment. "We hope to find better ways of modifying the appearance, function, and psychology of people affected with clefts," Dr. Harris stated.

The major emphasis in the proposed research is on establishing the normal range of function in cleft palate patients.

"Deterioration of the timing, symmetry, and constancy of electromyograms would indicate an unfavorable response, whereas a regular and symmetrical pattern would indicate competent muscles moving normal oral structures," Dr. Harris explained. The investigators will attempt to establish criteria for surgical and prosthetic management of oral clefts from their electromyographic studies.

In order to explore the causes of oral clefts, Dr. Harris and his co-workers will conduct studies of formative oral tissues in human embryos and will attempt to induce cleft lip or palate in animals by drugs or by changes in the intrauterine environment.

In further study of the function of oral structures, the investigators will do research on monkeys, some of whose oral structures have been altered to mimic oral clefts, malocclusion of tooth arch, and even some systemic neurological defects.

Associated with the project will be Dr. Orion H. Stuteville, professor of maxillofacial surgery and chairman of the executive committee of the Cleft Lip and Palate Institute; Dr. Morton S. Rosen, assistant professor of prosthetics and Director of Cleft Lip and Palate Institute; Dr. John R. Thompson, professor of orthodontics; Dr. Harold Westlake, professor of speech correction and speech pathologist.

BUPERS 1120
In Reply Refer To
Pers B623/aeg
75–64
31 August 1964

BUPERS NOTICE 1120

From: Chief of Naval Personnel

Subj: Processing Ensign, 1915, USNR, medical students for the Senior Medical Student and Medical Intern Programs

Ref: (a) CRUITMAN

1. *Purpose.* To provide information concerning the procedures that will be followed in processing Ensign, 1915, USNR, medical students for the Fiscal Year 1966 Senior Medical and Medical Intern Programs.

2. *Discussion.* For the past several years the number of applications received from Ensign, 1915, USNR, medical students for the Senior Medical Student and Medical Intern Programs has been steadily declining. It is believed that one factor causing this decline has been the inconvenience and expense involved to the individual in requiring these applications to be processed at a U.S. Navy Recruiting Station or a U. S. Naval Hospital. For Fiscal Year 1966 those medical students who are presently participating in the Ensign Medical Student Program will be invited by the Chief, Bureau of Medicine and Surgery, to apply for the Senior Medical Student Program or the Medical Intern Program, as applicable, by completing and returning to the Chief of Naval Personnel application kits provided them at their medical schools. Selection will then be contingent upon the candidates meeting the prescribed physical standards at the time of reporting in compliance with their orders.

3. *Action.* Action addressees will continue to process civilian applicants for the Senior Medical Student and Medical Intern Programs in accordance with reference

(a). If they so desire, Ensigns 1915, USNR, may also be processed at U.S. Navy Recruiting Stations or at a U.S. Naval Hospital. Orders and/or appointments for selected Ensign, 1915, USNR, medical students will be forwarded to the cognizant Naval District Commandant for delivery by the naval activity nearest to the selectees' medical schools which is staffed and equipped to perform this function. Orders and appointments for selected civilian applicants will be forwarded to the cognizant U.S. Navy Recruiting Station for delivery.

4. *Cancellation.* This Notice is cancelled on 30 June 1965.

S/C.D. SIMONSEN
By direction

HOSPITAL SHIP CHANGE OF COMMAND

CAPT Frederick B. Carlson, MC USN, relieved CAPT Shakeeb Ede, MC USN, as Officer in Command of the Naval Hospital in the USS Haven in ceremonies aboard that ship at the U. S. Naval Station, Long Beach.

CAPT Carlson has been serving as Assistant Officer in Command and Chief of the Eye, Ear, Nose and Throat Service since reporting aboard in Aug. of 1964. Prior to his reporting, he served with the U. S. Naval Support Activity, Naples, Italy. He resides with his wife and family at 1457 Paseo del Mar, San Pedro.

CAPT Ede, who reported as Officer in Command July 5, 1961, is retiring after more than 27 years of active naval service. During the ceremonies, RADM O.D. Waters, Jr., Commander Naval Base Los Angeles, presented CAPT Ede with the Bureau of Medicine and Surgery's Certificate of Merit in recognition of CAPT Ede's "distinguished and outstanding service to the Medical Department of the Navy." CAPT Ede will continue his practice of surgery at the Fisher Clinic in Long Beach. He will reside with his wife and family at 300 Granada Ave., Long Beach.

At the present time, the Naval Hospital in USS Haven serves as the only Naval Hospital in the Long Beach-Los Angeles area and is responsible for the care of all active duty Navy and Marine Corps personnel and retired male personnel, and also for the thousands of dependents who are referred for consultation or treatment on an out-patient basis.—By LT R. S. Ruffin, MSC USN, PIO, NH in Haven.

THE FETAL LIFE STUDY

Based on findings of the Fetal Life Study (Columbia U. & Columbia-Presbyterian Med. Center) in which 3,200 pregnancies were followed during the years 1953 to 1957, it may be concluded that "drugs in general" are not an important factor in "congenital malformations in general." However, since most malformations noted in association with drug ingestion by the mother during the first trimester of pregnancy could not be explained genetically or environmentally, it can not be concluded that the drugs had no effect whatever. A drug can never be considered absolutely safe—only relatively safe. There is a certain degree of calculated risk involved in every therapeutic procedure. Physicians must always be alert to possible dangers. "Alert clinicians in the past have been our most sensitive warning system." The author offers a further word of advice. "Awareness of early pregnancy is generally not possible. Therefore women at risk of becoming pregnant should avoid medication in the latter half of the menstrual cycle unless the medical indications are urgent and the effectiveness of the procedure well established."—Mellin (New York, N. Y.), Am J Obst & Gynecol 90: 1169 (Dec), 1964. Republished from CLIN-ALERT®, No. 1, Jan 7, 1965, by permission of Science Editors, Inc.

AMERICAN BOARD CERTIFICATIONS

American Board of Pathology

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The use of antibiotics in pregnancy must be viewed with caution, because of their potentially unfavourable effects on the pregnant woman and the foetus.—WHO Chronicle 18(12): 450, December 1964.

There is strong evidence that susceptibility to tuberculosis may, in part, be genetically determined. The possibility of genetic differences in susceptibility to leprosy is also quite high, and a genetic element in the determination of paralytic poliomyelitis seems to be well established.—WHO Chronicle 18(12): 475, December 1964.

Atherosclerosis Research Meetings

Research workers taking part in the WHO organized combined epidemiological and pathological studies of atherosclerosis met in Geneva for a grading session from 1 to 12 July 1964.

The meeting was called primarily to continue the assessment of atherosclerosis in aortae and coronary arteries obtained at autopsy from areas in which a high proportion of deaths are autopsied. Specimens from a further 1500 subjects were graded and various comparability tests were made. Additional tests were carried out on material received from the International Atherosclerosis Project in Guatemala to continue comparison of grading between the two studies. Dr. Evgenia Evgenievna Matova of Moscow attended as a Research Scholar and took part in the statistical control of the study.

A similar grading session was held in Kisinev, Moldavia, USSR, from 26 October to 5 November 1964. Problems of combining studies of the living in the same areas as the autopsy study were discussed, as well as improved methods for assessing heart disease and cerebral lesions and lesions of the intra- and extra-cranial cerebral vessels at autopsy.—WHO Chronicle 18(12): 485, December 1964.

Automatic Data Processing in Health Administration

A Conference on the Application of Automatic Data Processing Systems in Health Administration was held in Copenhagen from 17 to 21 November 1964 under the auspices of the WHO Regional Office for Europe, in cooperation with the Government of Denmark.

Automatic data processing systems which include the use of computers are now beginning to be employed in public health administration. In view of the great potential value of these systems, it was thought that senior public health administrators might welcome an opportunity to consider the problems involved in their introduction and to discuss possible applications with colleagues from other countries.

In order to provide a clear basis for discussion, the Conference held an introductory session during which experts defined the terms employed in non-technical language. The characteristics of computers and the uses to which they may be put were considered, as well as the advantages and limitations of computers in comparison with punch-card and other systems. After this introductory session, the Conference considered possible applications in various branches of public health work, the problems of introducing computer systems, and possible future developments.—WHO Chronicle 18(12): 487, December 1964.

Environmental Health in the USSR

Nineteen public health experts, including engineers, medical officers of health, and health inspectors from all six WHO regions, took part in an inter-regional seminar on environmental health, held from 7 to 30 September 1964 partly in Moscow and partly in Tbilisi, the capital of the Georgian SSR.

The seminar—which is part of a programme initiated a few years ago by WHO in collaboration with the Ministry of Health of the USSR—consisted of 24 lectures and 18 field visits, during which the participants were able to observe at first hand the achievements of the USSR in community sanitation, including the sanitary control of water supplies, sewage disposal, solid refuse disposal, food sanitation, and housing. They also studied measures for the control of noise and atmospheric pollution, and reviewed the training of sanitary physicians and feldshers specializing in municipal hygiene.—WHO Chronicle 18(12): 485, December 1964.

The Obstetrician's Part in Maternal and Child Health Programmes

A European Symposium on the Role of the Obstetrician in Maternal and Child Health Programmes was held in Copenhagen from 22 to 29 October 1964. It was organized by the WHO Regional Office for Europe in view of the increasing need to co-ordinate the work of the obstetrician with that of the paediatrician and other maternal and child health workers so as to reduce maternal, perinatal, and neonatal mortality and morbidity and prevent low birth weight.

The Symposium was in the nature of a round-table conference with a limited number of participants, including obstetricians from university centres and from hospitals attached to community health services, and paediatricians with special interest in foetal life and the newborn.

WHO provided the services of a consultant and of five temporary advisers (two obstetricians, a medical sociologist, a public health administrator, and a nurse-midwife).—WHO Chronicle 18(12): 486, December 1964.

Organization of Dental Public Health Services

Dental public health services have today reached a fairly advanced stage in some countries. In others only a modest beginning has been made, and there are some newly emergent countries where the first step has still to be taken. Among the countries with well-developed services there are considerable differences in organizational pattern, but there are undoubtedly some common elements that can be defined and used as a basis for a generally acceptable organization of dental public health services.

A first attempt to outline such an organization was made by a WHO Expert Committee on the Organization of Dental Public Health Services at a meeting held in Geneva from 13 to 19 October 1964. It is felt that the report of this committee will be helpful to newly emergent nations developing their own dental health services and will provide other countries with useful ideas for the development of the services they already have.

The Committee also examined the needs of dental health services in regard to training and research, especially those aspects where stimulation or co-ordination of action by WHO might be desirable. Two reports of WHO Expert Committees have already reviewed the training of auxiliary dental personnel and dental education. The recent Committee was concerned more with the problem of training in dental public health, bearing in mind the possibilities of WHO—sponsored research in this connection.

Consideration was given to the recommendations already made by WHO Expert Committees in the general fields of public health administration, medical care, and public health training, and to the present policies of the International Dental Federation, which was represented at the meeting by the Chairman of its Commission on Public Dental Health Services.

An account of the Committee's work will appear in the WHO Chronicle at such time as its report is published.—WHO Chronicle 18(12): 487, December 1964.

In a survey of the effects of noise on mental health, it was found that 80% of the population investigated were aware of noise in the environment, 25% were troubled or annoyed by it, and 20% complained that it disturbed their sleep. Standards for soundproofing drawn up in the USSR specify that the total level of noise in houses should not exceed 35 decibels in the daytime and 30 decibels at night.—WHO Chronicle 18(12): 471, December 1964.

In the first 10 to 15 years after its discovery, penicillin was used or misused on such a vast scale that large numbers of people infected with syphilis probably received curative amounts—administered for other purposes—during the incubation period of the disease. With the increased production and use of the broad-spectrum antibiotics, which are usually ineffective against syphilis, fewer and fewer people are believed to have been exposed to chance prophylaxis against the disease after about 1955.—WHO Chronicle 18(12): 454, December 1964.

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